

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An ultrasonic imaging apparatus comprising:

an ultrasonic probe;

a plurality of acoustic elements configured and arranged to form a two-dimensional array, said two-dimensional array configured and adapted to fit within the ultrasonic probe wherein said plurality of acoustic elements includes at least two active acoustic elements capable of generating acoustic pulses and/or receiving echo signals; and

a beam controller coupled to said two-dimensional array, said beam controller capable of driving the at least two active acoustic elements to produce said acoustic pulses originating from the two

active acoustic elements for impinging an acoustic target to generate the echo signals, and having associated circuitry capable of controlling directional movement of said acoustic pulses by a combination of tractor treading and beam steering.

Claim 2 (Canceled)

3. (Previously presented) The ultrasonic imaging apparatus of claim 1, further including a signal processor coupled to said two-dimensional array for processing the echo signals, thereby forming at least one image signal.

4. (Original) The ultrasonic imaging apparatus of claim 1, wherein said two-dimensional array is configured and arranged in a substantially planar configuration.

5. (Original) The ultrasonic imaging apparatus of claim 1, wherein said two-dimensional array is configured and arranged in a substantially cylindrical configuration.

6.(Original) The ultrasonic imaging apparatus of claim 1, wherein said two-dimensional array is configured and arranged in a substantially convex configuration.

7.(Original) The ultrasonic imaging apparatus of claim 7, wherein said convex configuration includes substantially equal lateral and longitudinal dimensions.

8.(Currently Amended) A method for improving volumetric imaging in an ultrasonic imaging apparatus comprising the acts of:

providing an ultrasonic probe;

providing a plurality of acoustic elements configured and arranged to form a two-dimensional array, said two-dimensional array configured and adapted to fit within the ultrasonic probe wherein said plurality of acoustic elements includes at least two active acoustic elements capable of generating acoustic pulses originating from the two active acoustic elements and/or receiving echo signals;

providing a beam controller coupled to said two-dimensional array, said beam controller capable of driving the at least two of active acoustic elements to produce said acoustic pulses for impinging an acoustic target to generate the echo signals and having associated circuitry capable of controlling directional movement of said acoustic pulses by a combination of tractor treading and beam steering; and

actuating said beam controller to generate and move said acoustic pulses.

Claim 9 (Canceled)

10. (Previously presented) The method of claim 8, further comprising the act of providing a signal processor coupled to said two-dimensional array for processing the echo signals, thereby forming at least one image signal.

11. (Previously presented) The method of claim 10, further comprising the act of displaying data corresponding to the at least

one image signal.

12.(Original) The method of claim 8, wherein said two-dimensional array is configured and arranged in a substantially planar configuration.

13.(Original) The method of claim 8, wherein said two-dimensional array is configured and arranged in a substantially cylindrical configuration.

14.(Original) The method of claim 8, wherein said two-dimensional array is configured and arranged in a substantially convex configuration.

15.(Original) The method of claim 14, wherein said convex configuration includes substantially equal lateral and longitudinal dimensions.

16.(Currently Amended) An ultrasonic imaging kit comprising:

at least two ultrasonic probes, each having a transducer array and associated circuitry where each ultrasonic probe is configured and dimensioned for alternative placement within an ultrasonic system, at least one ultrasonic probe further including a plurality of acoustic elements configured and arranged to form a two-dimensional array, said two-dimensional array configured and adapted to fit within the ultrasonic probe wherein said plurality of acoustic elements includes at least two active acoustic elements capable of generating acoustic pulses and/or receiving echo signals; and

a beam controller coupled to the circuitry of the ultrasonic probe and in communication with said transducer array disposed within said ultrasonic probe, said beam controller capable of driving the at least two active acoustic elements to produce said acoustic pulses originating from the two active acoustic for impinging an acoustic target to generate echo signals and having associated circuitry capable of controlling directional movement of said acoustic pulses by a combination of tractor treading and beam steering.

Claim 17 (Canceled)

18. (Previously presented) The ultrasonic imaging kit of claim 16, further including a signal processor coupled to said two-dimensional array for processing the echo signals, thereby forming at least one image signal.

19. (Original) The ultrasonic imaging kit of claim 16, wherein said two-dimensional array is configured and arranged in a substantially planar configuration.

20. (Original) The ultrasonic imaging kit of claim 16, wherein said two-dimensional array is configured and arranged in a substantially cylindrical configuration.

21. (Original) The ultrasonic imaging kit of claim 16, wherein said two-dimensional array is configured and arranged in a substantially convex configuration.

22.(Original) The ultrasonic imaging kit of claim 21, wherein said convex configuration includes substantially equal lateral and longitudinal dimensions.

23.(Currently Amended) An ultrasonic imaging system comprising:

an ultrasonic probe;

a plurality of acoustic elements configured and arranged to form a two-dimensional array, said two-dimensional array configured and adapted to fit within the ultrasonic probe wherein said plurality of acoustic elements includes at least two active acoustic elements capable of generating acoustic pulses and/or receiving echo signals; and

a beam controller coupled to said two-dimensional array, said beam controller capable of driving the at least two active acoustic elements to produce said acoustic pulses originating from the two active acoustic for impinging an acoustic target to generate the echo signals, and having associated circuitry capable of



controlling directional movement of said acoustic pulses by a combination of tractor treading and beam steering.

24. (Previously presented) The ultrasonic imaging system of claim 23, further comprising:

a signal processor coupled to said two-dimensional array for processing the echo signals, thereby forming at least one image signal;

means for connecting said ultrasonic probe to an ultrasonic imaging apparatus; and

means for displaying the at least one image signal.

Claim 25 (Canceled)

26. (Original) The ultrasonic imaging system of claim 23, wherein said two-dimensional array is configured and arranged in a substantially planar configuration.

27. (Original) The ultrasonic imaging system of claim 23,

wherein said two-dimensional array is configured and arranged in a substantially cylindrical configuration.

28.(Original) The ultrasonic imaging system of claim 23, wherein said two-dimensional array is configured and arranged in a substantially convex configuration.

29.(Original) The ultrasonic imaging system of claim 28, wherein said convex configuration includes substantially equal lateral and longitudinal dimensions.